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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,564	10/12/2001	Larry Dean Cline	13DV14147	1452

31838 7590 07/02/2003

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EXAMINER

AHMED, SHAMIM

ART UNIT PAPER NUMBER

1765

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/976,564

Applicant(s)

CLINE ET AL.

Examiner

Shamim Ahmed

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 2/25/03 was filed before the mailing date of the non-final Office action on 3/6/03 but the IDS was received by the technology center on 3/7/03. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3,5-6,13 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Lada et al (4,339,282).

As to claims 1 and 13, Lada et al disclose a method for removing a metal coating from nickel supper alloys from an airfoil such as gas turbine blades using a chemical etchant, which avoids attaching the nickel supper alloy (col.2, lines 29-47).

As to claims 2-3, Lada et al teach that the chemical etchant is an aqueous solution comprising strong acid such as hydrochloric acid and nitric acid (col.2, lines 31-35).

Art Unit: 1765

As to claim 5, Lada et al teach that the stripping or removal step includes the metal-coated supper alloy is immersed into the solution for a period of time until the coating is removed from the surface of the supper alloy (col.2, lines 39-46).

As to claim 6, Lada et al inherently teach that the turbine blade has coating or cladding along an edge of the blade because Lada et al teach that the blade having an edge is coated with metal, which could be removed (col.1, lines 25-36).

As to claim 22, Lada et al teach that the substrate comprises a metal composite such as an alloy and by definition, an alloy is a composite of two different metals (col.2, lines 51-58).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1765

6. Claims 4,7-12 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lada et al (4,339,282) as applied to claims 1-3,5-6 and 13 above, and further in view of Hinson (5,705,082).

Lada et al discussed above in the paragraph 3 and also teach that the coating or the cladding is made of a titanium alloy (col.2, lines 51-54).

As to claim 4, Lada et al fail to teach that the acid is hydrofluoric acid.

However, in a method of removing metal such as titanium used to form a protective sheath for composites such as a leading edge for a fan blade using an acid solution which can be hydrochloric, hydrofluoric, sulfuric, nitric acid (col.2, lines 14-25 and lines 66- col.3, lines 2-4).

Therefore, it would have been obvious to one skilled in the art at the time of claimed invention to combine Hinson's teaching into Lada et al's process because both the hydrochloric and hydrofluoric acid are functionally equivalent for efficient removal of titanium as taught by Hinson.

As to claims 7,9,11 and 14, Hinson teaches that the blade has internal surface of the titanium leading edge (col.2, lines 21-25).

It would have been obvious to have an interior and a perimeter section of the coating over a fan blade because by conventional design a fan blade has a convex side and a concave side.

As to claims 8 and 20, Lada et al teach that the thickness of the coating is about 0.04 to about 0.08 mm (col.3, lines 21-22).

Art Unit: 1765

As to claim 10, Hinson teaches that the metal-coated substrate is treated for a period of time of about 1-20 minutes (col.3, lines 34-36).

As to claims 15-17, Hinson teach that the etchant solution is typically an acid solution such as hydrochloric, hydrofluoric, nitric acid, as well as mixtures thereof (col.3, lines 2-5).

As to claim 18, see the rejection to claim 5 above in the paragraph 3.

As to claim 19, it would have been obvious to have higher thickness in the direction from the interior section to the perimeter section because at least the interior section is in contact with the etchant solution.

As to claim 21, Hinson teaches that the blade has a leading edge (col.2 lines 21-25).

7. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lada et al (4,339,282) as applied to claims 1-3,5-6 and 13 above, and further in view of EP-1162286.

Lada et al discussed above in the paragraph 3 but fail to teach that the substrate for the airfoil comprises a non-metallic composite.

However, in a method of removing coating from an airfoil such as turbine blades, EP-1162286 (EP'286) discloses that the substrate is usually a metallic or non-metallic composite such as a supper alloy and polymer, respectively (see the abstract and col.6, lines 14-55).

Art Unit: 1765

The EP'286 also teaches that non-metallic or polymeric substrate is preferable because of their acid-resistance property (col.6, lines 48-50)..

Therefore, it would have been obvious to one skilled in the art to combine EP'286' teaching of functional equivalency of both metallic and non-metallic substrate into Lada et al's process because of their functional equivalency and also for the preference of polymeric substrate with acid-resistant property as taught by EP'286.

Response to Arguments

8. Applicant's arguments filed 4/17/03 have been fully considered but they are not persuasive. Applicants argue that Lada et al do not disclose a process of removing a cladding adhered to a substrate because Lada et al removes an aluminide coating from a substrate comprises a supper alloy.

This is not persuasive because Lada et al teaching of removing n aluminum-containing coating from a substrate comprises metal and by definition, cladding is nothing but a metal coating on a metal.

As to claims 6 and new claim 24, Applicants also argue that Lada do not disclose a selective removal of the cladding positioned along one edge of the airfoil.

In response, examiner states that applicant's argument is more specific than the claims because claims are limited to remove the cladding at least one edge of the airfoil but does not claim that leaving the other edge intact.

Examiner also states that Lada et al's blade having edges coated with metal and the coated metal is removed by stripping solution (col.1, lines 25-36).

Art Unit: 1765

So, Lada et al inherently teach that the coating is removed from at least one edge of the turbine blade or airfoil as claimed.

Applicants also argue that Hinson is related to a method of roughening a metal surface.

This is not persuasive because Hinson is applied to show the functional equivalency of hydrochloric and hydrofluoric acid as an efficient etchant of titanium (col.3, lines 2-20).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dickie (5,695,659) discloses a conventional process for removing a protective coating from a surface of an airfoil.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1765

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (703) 305-1929. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on (703) 308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Shamim Ahmed
Examiner
Art Unit 1765

SA
June 24, 2003


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700